Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Gabriel Abbott Memorial School

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared
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Table 1: Public Water System (PWS) Information

PWS Name	**Gabriel Abbott Memorial School**
PWS Address	**North County Road**
City/Town	**Florida, Massachusetts**
PWS ID Number	**1098004**
Local Contact	**Mr. William Enser**
Phone Number	**1-413-243-1416**

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	1098004-01G	100	411	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

Description of the Water System

The Gabriel Abbott Memorial School (the school) is located on the south side of North County Road in Florida. Florida is a small, rural, town in northwestern Massachusetts on the Vermont border. Florida does not have a municipal water system or a wastewater treatment facility. Therefore the school is served by an on-site water supply and septic disposal system. The total school student and staff population is approximately 150 people per day.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

The school is served by one potable supply well (Well #1–01G), a 6-inch diameter, 150-feet deep, bedrock well that is located east of the school at the edge of the parking lot. The school, North County Road, a parking area for 12 to 15 cars, the septic system and a small play area are all within the protection areas of the well. The Town and school have undertaken steps to protect the well from potential threats during the past few years. The well was originally located in an 8-feet deep pit, but recently the well casing was extended to above grade to minimize the potential for flooding of the casing. The school also had an underground fuel oil storage tank located immediately adjacent to the well; that tank was replaced with an aboveground tank in 2000. Following the tank replacement, the Town applied for and was awarded a wellhead protection grant to move the tank topographically downgradient of the well and away from the immediate vicinity of the well. The Town is also in contact with staff from the regional Underground Injection Control Program (UIC) to address the floor drain in the basement that is believed to discharge to the septic system.

The school is located on the Hoosac Range of the Berkshire Highlands. Numerous bedrock outcrops in the area confirm the geologic mapping of thin till over bedrock. The bedrock in the immediate area of the school is mapped as the Hoosac Schist a grey-black quartz-mica schist. There is no evidence of a protective barrier of either thick till or of a confining, protective clay layer in the vicinity of the well. Wells located in this type of geologic setting are considered to have a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration from the surface.

The Zone I is the area immediately around the wellhead where only activities associated with supplying water or other non-threatening activities are allowed to occur. The Interim Wellhead Protection Area (IWPA) is a larger area that potentially contributes water to the well. The IWPA is only an interim protection area until an actual Zone II contribution area is delineated; the actual area of contribution to the wellhead may be larger or smaller then the IWPA. The well has a Zone I protective radius of 100 feet and an IWPA protective radius of 411 feet. These protective radii were based on the metered water use reported by the school of approximately 500 gpd. Please refer to the attached map that shows the Zone I and IWPA.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Sources of Contaminants	Zone I	IWPA	Threat	Comments
Fuel Oil Storage	No	Yes	Moderate	AST within containment in IWPA; floor drains in boiler room are being addressed.
School	Yes	Yes	Moderate	Limit road deicing materials use, use BMPs for household hazardous materials , monitor parking areas and control stormwater.
Residential housing	No	Yes	Moderate	Septic systems, household hazardous materials, home heating fuel.
Septic systems components	No	Yes	Moderate	Residential and the school's wastewater components are in the IWPA.
Transportation and parking	Yes	Yes	Moderate	Monitor stormwater runoff and redirect as necessary to protect the well.

-For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Water suppliers are required to monitor the water quality on a regular basis and the water from the school well is not treated prior to distribution. You may request additional information regarding the quality of the water, from the local contact listed in Table 1.

Please refer to the following section, attached maps of the Zone I and IWPA and Table 2 for additional assessment information.

2. Discussion of Land Uses in the Protection Areas

During the assessment, several land uses and activities were identified within the drinking water supply protection areas and in close proximity to the protection areas that are potential sources of contamination.

Key issues include:

1. **Non-conforming Zone I;**
2. **Above ground storage tanks;**
3. **School facilities;**
4. **Floor drain in the boiler room;**
5. **Transportation corridors/parking; and**
6. **Residential.**

There are several activities within the Zone I and IWPA that pose a potential threat to the water supply. The overall ranking of susceptibility to contamination for the well is moderate based on at least one moderate threat activity within the protection areas. Please refer to Table 2.

1. Non-conforming Zone I – The water supplier does not own or control the entire Zone I area for the well, however, the only activities in the Zone I are passive recreation and a periodic beaver population in the nearby wetland. Systems not meeting DEP Zone I requirements for ownership or control or non-conforming activities within Zone I must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Zone I Recommendations:

- Prohibit any additional non-water supply activities within Zone I and, where feasible, remove non-conforming activities within the Zone I areas.
- Do not use or store pesticides or fertilizers in Zone I.
- Do not store or use household hazardous materials near the well.
- Inspect the well regularly to ensure the cap is secure and there is no standing water near the well.

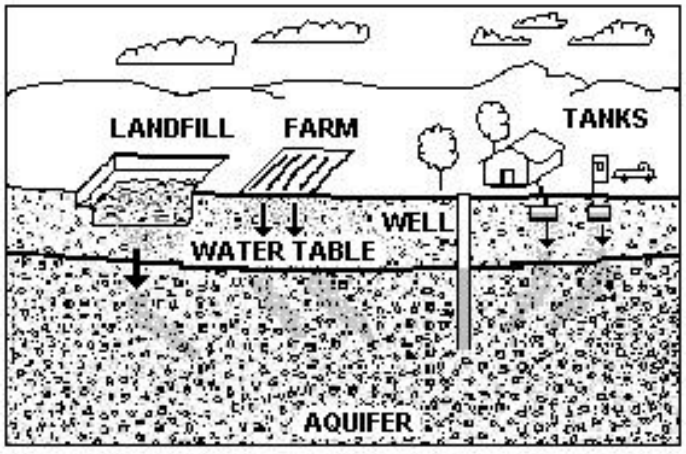

Figure 1: Example of how a well could become contaminated by different land uses and activities.

2. Above ground fuel oil storage – There is a fuel oil AST within containment in the IWPA. If managed improperly, fuel oil tanks and their associated piping can be a potential source of contamination due to leaks or spills of the materials they store.

Recommendation:

- Any modifications to the tank must be accomplished in a manner consistent with Massachusetts' plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs and USTs.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Regional Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier and town boards.

- Monitor all activities associated with the fuel oil, especially delivery.
- Have spill containment/absorbent materials available on-site

3. School facilities – Elementary and preschools generally use only household type hazardous materials.

Recommendations:

- Continue the use of Best Management Practices for all activities at the school.
- Review your emergency response plan regarding accidental releases within the area. Ensure that emergency responders in town are aware of the locations of your resource areas.
- For additional information, refer to the Massachusetts Public Health Association's Healthy Schools website online at http://www.mphaweb.org/pol_schools.html.

4. Floor Drains in Boiler Room – There are floor drains in the boiler room, that are assumed to discharge to the septic system. However, the discharge point is not known. Title 5 prohibits disposal of any wastewater other than sanitary waste to a septic system and the UIC regulations prohibit dry wells in areas where hazardous materials or petroleum may enter the floor drain. The floor drain must be protected to prevent boiler blow down, oil or other prohibited discharges through the floor drain. The school is presently working with the regional DEP UIC staff to resolve the issues regarding the floor drains.

Recommendations:

- Be sure that the floor drains are in compliance with Department Regulations (refer to Industrial Floor Drain Brochure attached).
  - Contact the UIC coordinator for the Western Region Office of the Department (Rick Larson 413-755-2207 or Tony Zaharias 413-755-2122).
- Containment to prevent accidental releases to the floor drain may be an option. Contact the regional DEP staff for the UIC program listed above. Oil lines from the tank to the boiler are sleeved so that any leaks would drain back to the tank or minimal oil would leak to the boiler room. Prepare a policy and a plan for maintenance operations, especially when oil filters are changed. We recommend that you require your boiler maintenance contractor use containment, protect the drain and have absorbent materials on hand to prevent accidental leaks while conducting routine maintenance. The contractor should be responsible for the off-site disposal of any boiler blow down generated during maintenance.
- Seal all cracks in the floor and the floor drain if it cannot be adequately protected to prevent a prohibited discharge.

5. Transportation corridor/parking – Transportation corridors and parking are located within the Zone I and IWPA. Accidents and normal use and maintenance of corridors and parking areas may pose a potential threat to water quality. Catch basins transport stormwater from roadways and adjacent properties to the ground, streams, rivers or reservoir. As flowing stormwater travels, it picks up de-icing materials, petroleum chemicals and other debris on roads and contaminants from streets and lawns. Common potential contaminants in stormwater originate from automotive leaks, automobile maintenance and car washing, accidental spills as well as, waste from wildlife and pets.

Recommendations:

- Prepare an Emergency Response Plan that includes coordination among the emergency responders to be sure they area aware of the location of your well.
- Consider prohibiting parking immediately in front of the well casing.

6. Residential Land Use – There are two residences within the IWPA protection area. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems leach to the ground. If septic systems fail or are not properly maintained they could be a potential source of microbial contamination.

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground and streams. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automobile leaks, maintenance, washing, or accidents. Visit the Nonpoint Source pollution web site for additional information and assistance at http://www.state.ma.us/dep/brp/wm/nonpoint.htm.

Residential Land Use Recommendations:

V Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will further reduce the well's susceptibility to contamination. The DEP commends the school and the Town on their efforts to remove the UST, pursue grant funds to move the AST, protect the well casing and address floor drains in the boiler room.

Please review and adopt the key recommendations listed above and as follows:

Priority Recommendations:

V Communication with the Town boards and emergency responders regarding the location of the well and the protection areas and continue efforts to protect the well.

Zone I and IWPA:

V Consider prohibiting parking immediately adjacent to the well.
V Prohibit any new non-water supply activities from Zone I.
V Conduct regular inspections of the Zone I and IWPA.
V Post drinking water supply signs in key locations such as along the access road and in the parking areas, but away from the well.
V Provide information to staff and pertinent school organizations about the potential hazards of household chemicals.
V Use Best Management Practices (BMPs) for the use of petroleum products, lawn care products, cleaning products and household hazardous waste.

Training and Education:

V Staff should be instructed on the proper disposal of spent chemicals. Include custodial staff, teachers, groundskeepers, and the certified operator.

Planning:

V Request that local officials develop and include the IWPA in an Aquifer Protection District and to continue assisting you in protection of the water supply.
V Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
V Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts.
V Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for

funding under the "Wellhead Protection Grant Program". If funds area available, the Department posts a new Request for Response (RFR), grant application form. Other funding opportunities are described in “Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation” on the MA DEP website at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Areas
- Recommended Source Protection Measures Fact Sheet